

## CLAIMS

1. (amended) A rotary atomizing head type coating machine, including a rotary atomizing head for spraying supplied paint, an air motor coupled with said rotary atomizing head and rotated by a supply of air, a speed sensor adapted to detect rotational speed of said air motor, an air source for supplying an air to said air motor, an electropneumatic converter adapted to adjust an air pressure supplied from said air source according to an electrical quantity, and a controller adapted to control an electrical quantity to be output to said electropneumatic converter in such a way as to diminish a differential between said rotational speed detected by said speed sensor and a given target rotational speed, for feedback control of said air pressure, characterized in that:

said controller is provided with a steady value computing means adapted to compute a necessary value of electrical quantity as a steady value against given settings in arbitrary target rotational speed and paint discharge rate for driving said air motor steadily in the vicinity of said given target rotational speed and at said paint discharge rate;

when either said target rotational speed or said paint discharge rate is to be changed, said controller being adapted to compute a new steady value on the basis of said changed target rotational speed and paint discharge rate by the use of said steady value computing means;

said controller further being adapted to output to said electropneumatic converter an electrical quantity for an air pressure higher than that of said new steady value when said target rotational speed is to be changed to a higher speed, for rotating said air motor at a speed higher than a newly set target rotational speed, and an electrical quantity for an air pressure lower than that of said new steady value when said target rotational speed is to be changed to a lower speed, for rotating said air motor at a speed lower than a newly set target rotational speed.

2. A rotary atomizing head type coating machine as defined in claim 1, wherein said steady value computation means is adapted to compute a steady value of said electrical quantity on the basis of coefficient of viscosity and specific gravity of paint in addition to said target rotational speed and paint discharge rate.

3. (Deleted)

4. (amended) A rotary atomizing head type coating machine as defined in claim 1, wherein said controller is adapted to go to feedback control on the basis of said differential in rotational speed, after said detected rotational speed has reached said target rotational speed.

5. A rotary atomizing head type coating machine as defined in claim 1, wherein at the time of suspending paint supply, said controller is adapted to preset a target rotational speed at the same value as a target rotational speed to be set upon restarting paint supply.

6. A rotary atomizing head type coating machine as defined in claim 1, wherein said controller is adapted to increase said paint discharge rate as well as said target rotational speed at the time of coating a broad surface area of a work piece, and to decrease said paint discharge rate as well as said target rotational speed at the time of coating a narrow surface area of a work piece.